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Claims

1. A method of writing information in a data storage medium (D) comprising an optical information medium which has a polymer carrier (1), wherein atoms and/or molecules that change the refractive index are introduced into the polymer carrier (1), at locations (4) associated with individual information units, as a function of the information to be entered.
2. The method as claimed in claim 1, wherein the atoms and/or molecules that change the refractive index are diffused into the polymer carrier (1), preferably by means of local heating.
3. The method as claimed in claim 2, wherein the atoms and/or molecules that change the refractive index originate from a layer (2) which is applied to the polymer carrier (1).
4. The method as claimed in claim 3, wherein the rest of the layer (2) is removed from the polymer carrier (1) after the information has been entered.
5. The method as claimed in claim 1, wherein the atoms and/or molecules that change the refractive index are implanted into the polymer carrier by means of particle beams.
6. The method as claimed in one of claims 2 to 4, wherein the information to be entered is entered by means of irradiation with infrared light.
7. The method as claimed in one of claims 1 to 6, wherein the information to be entered is entered by means of a focused write beam (3).

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8. The method as claimed in one of claims 1 to 6, wherein the information to be entered is entered over a large area, using a mask.
- 5 9. The method as claimed in one of claims 1 to 8, wherein highly polarizable molecules are used as atoms and/or molecules that change the refractive index.
- 10 10. The method as claimed in claim 9, wherein halogen-containing molecules are used as highly polarizable molecules.
- Sub 15* 11. The method as claimed in claim 9 or 10, wherein aromatic molecules are used as highly polarizable molecules.
12. The method as claimed in one of claims 1 to 8, wherein slightly polarizable molecules are used as atoms and/or molecules that change the refractive index.
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13. A data storage medium, comprising an optical information medium with entered information, which has a polymer carrier (1), the polymer carrier (1) containing atoms and/or molecules that change the refractive index, at locations (4) associated with individual information units, as a function of the entered information.
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14. A data storage medium, comprising an optical information medium, which has a polymer carrier (1), the polymer carrier (1) being provided with a layer (2) which contains atoms and/or molecules that change the refractive index and which can be diffused into the polymer carrier (1) by means of local heating.
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15. The data storage medium as claimed in claim 13 or
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14, wherein the atoms and/or molecules that change the refractive index comprise highly polarizable molecules.

5 16. The data storage medium as claimed in claim 15, wherein the highly polarizable molecules comprise halogen-containing molecules.

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10 17. The data storage medium as claimed in claim 15 or 16, wherein the highly polarizable molecules comprise aromatic molecules.

15 18. The data storage medium as claimed in claim 13 or 14, wherein the atoms and/or molecules that change the refractive index comprise slightly polarizable molecules.

20 19. The data storage medium as claimed in one of claims 14 to 18 in connection with claim 14, wherein the layer (2) is assigned an absorber which is set up to absorb a write beam, at least partially, and to locally discharge the heat produced thereby at least partially to the layer (2) and/or the polymer carrier (1).

25 20. The data storage medium as claimed in one of claims 13 to 19, wherein the information medium has a plurality of polymer carrier plies (10), through which information units can be read from a  
30 preselected polymer carrier ply (10) and, if appropriate, can be written to a preselected polymer carrier ply (10).

35 21. The data storage medium as claimed in claim 20, wherein an adhesion layer (12) is in each case arranged between adjacent polymer carrier plies (10).

22. The data storage medium as claimed in claim 21,

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wherein the refractive index of the adhesion layer (12) differs only slightly from the refractive index of the polymer carrier (11).

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23. The data storage medium as claimed in one of claims 13 to 22, wherein the polymer carrier comprises a polymer film (11).
- 10 24. The data storage medium as claimed in claim 23, wherein the information medium (11) is wound spirally.
- 15 25. The data storage medium as claimed in claim 24, which comprises an optically transparent winding core which has a recess in its central area.
- 20 26. The use of a data storage medium as claimed in claim 25 in a drive which is tuned thereto and has a reading device (S) and, optionally, a writing device (S), the reading device (S) and the optional writing device (S) being arranged in the recess in the central area of the winding core, and, in order to read or write information, being moved relative to the data storage medium (D) while the data storage medium (D) is stationary.
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